## Space Weather Forecast

Issued on Sunday 26 January 2025 at 00:32 Local

**This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales**

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**Space Weather Forecast Headline: Chance of G1 geomagnetic storms Day 1 (26 Jan), ongoing chance of isolated Moderate flares.**

**Analysis of Space Weather Activity over past 24 hours**

**Solar Activity:** Activity has been at Low levels, with several Common-class flares in the last 24 hours.

There are currently eight sunspot regions visible on the Earth-facing disc. The largest, most active and nominally most complex region is near the southwestern limb. This group has shown fading in its central and trailing portions, but magnetic complexity is difficult to assess due to the difficult viewing angle near the limb. A region in the southwest, whilst still very small, has shown some spot emergence with a north-south aligned magnetic structure which could be more unstable than otherwise indicated. Other regions are relatively small at the present time, however looping on the east limb suggests the potential for more region(s) to rotate onto the disc.

No Earth-directed Coronal Mass Ejections (CMEs) have been seen in the last 24 hours.

**Solar Wind / Geomagnetic Activity:** The solar wind showed a decline to background levels after a recent fast wind. Wind speeds were at slightly elevated levels, around 450km/s, becoming background near 360 km/s. The Interplanetary Magnetic Field was weak, with the north-south component varying weakly. Geomagnetic activity was Quiet (Kp 0-1).

**Energetic Particles / Solar Radiation:** No solar radiation storms were observed.

**Four-Day Space Weather Forecast Summary**

**Solar Activity:** Low to Moderate solar activity is expected with a chance of isolated Moderate flares and a slight chance of Strong flares.

**Solar Wind / Geomagnetic Activity:** A potential CME arrival was expected around 25/1800UTC. Whilst it is later than previously anticipated, an arrival from this feature cannot be ruled out during the first half of Day 1 (26 Jan). A coronal hole looks to be emerging in the northwest quadrant of the disc, however any influence from this feature is likely to be limited.

Quiet to Unsettled activity (Kp 1-3) is likely, but with a chance of Active to G1/Minor Storm (Kp 4-5) intervals through Day 1 (26 Jan) should we see any CME arrival, with a slight chance of G2-

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G3/Moderate-Strong Storm (Kp 6-7) intervals.

**Energetic Particles / Solar Radiation:** There is a slight chance of enhancements exceeding the S1/Minor Radiation Storm threshold, should any larger flares occur from the western hemisphere.

## Geomagnetic Storms

| Geomagnetic Storm Probability (Exceedance) | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Minor or Moderate | G1 to G2 | No | 30 | 5 | 5 | 5 |
| Strong | G3 | No | 5 | 1 | 1 | 1 |
| Severe | G4 | No | 1 | 1 | 1 | 1 |
| Extreme | G5 | No | 1 | 1 | 1 | 1 |

## Radio Blackouts - X-Ray Flares

| X-Ray Flares Probability | Level | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | R1-R2 (M Class) | No | 50 | 50 | 40 | 40 |
| Very Active | R3-R5 (X Class) | No | 10 | 10 | 5 | 5 |

## Solar Radiation Storms (High Energy Protons)

| Radiation Storms Probability (Exceedance) | Level ($cm^{-2}sr^{-1}s^{-1}$) | Past 24 Hours (Yes/No) | Day 1 (00-24 UTC) (%) | Day 2 (00-24 UTC) (%) | Day 3 (00-24 UTC) (%) | Day 4 (00-24 UTC) (%) |
|---|---|---|---|---|---|---|
| Active | ≥ S1 | No | 15 | 15 | 10 | 5 |
| Very Active | ≥ S3 * | No | 1 | 1 | 1 | 1 |

* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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